



# Inconel 718

**Description:** Nickel Alloy Inconel 718 is a nickel based heat resistant alloy in fine powder form. This kind of precipitation-hardening nickel-chromium alloy is characterized by having good tensile, fatigue, creep, and rupture strength at temperatures up to 1300°F. Nickel Alloy Inconel 718 also has outstanding corrosion resistance in various corrosive environments.

**Applications:**

- Aero and land based turbine engine parts.
- Rocket and space application components.
- Chemical and process industry parts.
- Oil well, petroleum and natural gas industry parts.

**Composition:**

Carbon (C) = max. 0.08%	Manganese (Mn) = max. 0.35%
Silicon (Si) = max. 0.35%	Phosphorus (P) = max. 0.015%
Sulfur (S) = max. 0.015%	Chromium (Cr) = 17.00—21.50%
Nickel (Ni) = 50.00—55.00%	Molybdenum (Mo) = 2.80—3.30%
Niobium (Nb) = 4.75—5.50%	Titanium (Ti) = 0.65—1.15%
Aluminum (Al) = 0.20—0.80%	Cobalt (Co) = max. 1.00%
Copper (Cu) = max. 0.30%	Tantalum (Ta) = max. 0.05%
Boron (B) = max. 0.0006%	Lead (Pb) = max. 0.0005% (5ppm)
Bismuth (Bi) = max. 0.00003% (0.3ppm)	Selenium (Se) = max. 0.0003% (3ppm)
Iron (Fe) = remainder	

**Stress Relief:** Stress Relieve at 1950°F for 1.5 hours

**Hot Isostatic Pressing:** (OPTIONAL) -- HIP at 2175°F, 15 ksi for 4 hours

**Heat Treatment:** (OPTIONAL) -- Heat treatment to AMS 5662 or AMS 5664 standards.

	AMS 5652	Wrought	DMLS (As Built)	DMLS (Stress Relief)	DMLS (HIP & HT)
<b>0.02% Yield (ksi)</b>	150	165-180	109-117	111-136	164-170
<b>Ultimate Tensile (ksi)</b>	180-185	192-208	147-158	163-177	198-231
<b>Elongation (%)</b>	6-12	17-22	26-28	27-35	21-43
<b>Hardness (HRB)</b>	35.5	40-46	22-27	28-36	40-43

The data presented above has been collected by MTI, and is proprietary information of MTI. These properties are representative of hardware produced on MTI machines using proprietary processing practices. Materials produced on other machines are likely to differ.